

British trains get the bullet

LONDON'S LONG-SUFFERING COMMUTERS ARE TO HAVE THEIR DAILY LIVES TRANSFORMED, WITH THE ADOPTION OF 150MPH JAPANESE BULLET TRAINS ON THE KENTISH LINES



Relief may be at hand for Britain's rail travellers, after what seems like decades of declining service and broken promises to improve the system, now that Transport Secretary Alistair Darling has announced an order for 30 Shinkansen trains made by Hitachi worth over £200M, to be delivered within five years. The creaking, overcrowded lines which punctuate the start and the end of the working day for thousands of miserable travellers will by 2009 be transformed into technological marvels upon which delighted passengers relax to plan their productive days and relaxing evenings.

Thirty Bullet Trains have been ordered for the commuter lines of Kent. They will almost certainly also be used on the Channel Tunnel Rail Link, and seem likely to be rolled out across many of the nation's key commuter and intercity routes shortly after.

The advantage of importing trains is that the supporting technology is developed, mature and reliable. Much of the rail network will have to be

Thirty Bullet Trains have been ordered for the commuter lines of Kent. They will almost certainly also be used on the Channel Tunnel Rail Link. Part of the plan is announced by Mr Darling is that they will provide a key high speed link between Central London and the 2012 Olympics, should the British bid prevail!

upgraded to accommodate the Bullet Trains, but the cost of doing this will be more than covered by the increased economic activity that will become possible.

The plan is that Hitachi will build the trains in Japan, in the Kasado works, with many of the key subsystems being supplied by the company's Mito, Narashino or Nakajo plants. They will be shipped to Britain by sea, ready to run on the newly improved railways. The Bullet Trains' on-board technology is well proven, much of it actually being standard or modified industrial electronics. Support and maintenance arrangements will be included in the supply contract and are likely to involve Hitachi's existing network of distributors and service engineers.

"The main traction drive system is an inverter-fed motor, the same as used in industrial applications such as pumps, fans and manufacturing cells throughout industry, except of a much higher power capacity and voltage threshold," explains Stuart Harvey MD of Hitachi's UK distributor, Silverteam. "The inverter uses power and control electronics to invert and smooth the supply's AC waveform to give a controllable variable speed characteristic to the traction motor which would otherwise be fixed speed."

The Bullet Trains' inverters are large and built at the Mito works to withstand the rigours of high speed travel and to operate over a wide temperature range. There will be several other inverters on board each train, controlling functions such as ventilation, traction unit cooling and drinking and foul water pumping. These inverters will be built at the Narashino works, as will those incorporated into the air conditioning units of which there will be two per passenger carriage plus more in the traction unit.

Hitachi SJ300 inverters on air conditioning units will be used throughout. These are standard models as used in many, many buildings and other fixed installation, although they are modified for rail usage so that they can ride through over-and undervoltages, power surges and other supply fluctuations.

"As you look around a Bullet Train you see many Hitachi industrial automation components," comments Harvey. "Several different models of HMI are used for passenger and crew information and security. The full range of PLCs is in evidence with remote I/O; small ones locking the toilet door, medium ones interlocking the access doors and large ones configured to provide highly redundant high level integrated control through the six, eight or ten carriage length of the train.

"Being Japanese, the Bullet Trains are well equipped with catering facilities, electronic entertainment systems, telephones, computer terminals, work stations, etc. These are all integrated through a control system that is the match of any I've seen in any industry. In fact I'd say they owe more to NASA than to Brunel!"

New £1 million fund supports excellence in engineering

The Engineering and Technology Board (etb) has established a £1 million fund to increase the number of registered engineers and technicians in the UK over the next five years. "The etb is committed to investing in the future of engineering in the UK and registration is the sector hallmark of professional knowledge and competence," comments CEO John Clark. "Our recent study, 'Wealth Creation from SET' found that SET people-intensive industries contribute to over a quarter of GDP in the UK. Only by recognising the value that professional engineers and technicians bring to the UK economy can we guarantee the future wealth creating potential of the UK."

Dr Mike Howse, Director of Engineering & Technology at Rolls Royce plc commented: "A registered engineer or technician has been measured against international standards for competence. Registration demonstrates the importance of engineering and engineering to our industry. It increases the engineer's professional standing both externally and within our organisation."

The etb welcomes approaches from engineering institutions, employers and other organisations concerned with the future of engineering in the UK. The etb fund is available via grant application to assist those organisations to effectively promote membership of the Engineering Council UK's register of professional engineers and technicians.

Meanwhile, at a time when UK university faculties are struggling to attract new students on to engineering and technology courses, the University of Central England's Technology Innovation Centre (TIC) reports a record in-take this academic year. For the first time well over 500 new students have embarked on one of TIC's eighteen undergraduate courses run at its Millennium Point campus in central Birmingham. Douglas Morley-Smith, TIC's Associate Dean in charge of undergraduate enrolment, comments: "It seems TIC's top ratings among engineering faculties, and reputation for producing very employable students, are bearing fruit. These factors, together with our strong local, national and international industry alliances, and status as a major international academy for CISCO, are helping boost demand for our undergraduate places in engineering and technology. This contrasts with the trend being seen elsewhere."

Numbers of students are on, or above, target on over 85% of all TIC's full-time programmes. This year has also seen TIC achieve its largest ever intake of overseas students, on both undergraduate and postgraduate degree courses. More are expected to join its postgraduate programmes in the second semester in February 2005. At the recent CBI conference, Director General Digby Jones said of globalisation: "The challenge is to create more jobs than we lose - which we are doing - and to ensure we have the skills to take advantage of them, which remains a problem." TIC is successfully playing its part in solving that problem.

Chief...
Manufacturers are not afraid to ask for help when it comes to... standing up to... competition from abroad, according to the London Manufacturing Advisory Services, MAS. In the 10 years since it was set up by the DTI to help London... manufacturers outwit competition from abroad, particularly Far East, the agency and its partners (Business... London, the London Development Agency, and the regional Engineering Employer's Federation) have helped manufacturers make predicted savings of £3 million per annum and create an increased turnover of nearly £11 million.